BENTON LAKE NATIONAL WILDLIFE REFUGE
WILLOW CREEK NATIONAL WILDLIFE REFUGE
PISHKUN NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

JANUARY - APRIL 1963

REFUGE PERSONNEL

Eugene D. Stroops, Refuge Manager
Robert L. Barber, Asst. Refuge Manager
Dean C. Rodman, Operator, General (Heavy)
Sharon K. Gaffney, Clerk Stenographer

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

GREAT FALLS, MONTANA

CONTENTS

BENTON LAKE NATIONAL WILDLIFE REFUGE

GREAT FALLS, MONTANA

NARRATIVE REPORT

JANUARY - APRIL 1963

I. GENERAL

A. Weather Conditions

Weather in the Great Falls area has been, to say the least, quite variable since January 1.

The following table will serve to summarize weather data for Benton Lake during the period concerned. Information is supplied by the U. S. Weather Bureau, International Airport, Great Falls, Montana.

	Precipitation				Temperature	
	Snowfall	This Month	Normal		Max.	Min.
January	18.0	1.71	.45		55	-26
February	3.2	.32	.74		64	-13
March	3.9	.35	.92		71	16
April	11.1	1.24	.98		79	19
Total	36.2	3.62	3.09	Extremes	79	-26

The period was quite windy (as usual for Benton Lake). Maximum velocity exceeded 20 m.p.h. on 24 days in January, 18 days in February, 26 days in March and 16 days in April.

The 79° extreme for April equalled a record set in 1908 and was a fine Sunday afternoon for fishing, as this writer can readily attest.

B. Habitat Conditions

1. Water

Elevations for Unit I and II water levels were 3623.25 and 3619.40, respectively at the beginning of the period. Evaporation decreased these readings to 3623.07 and 3618.75 by April 30.

Ice-out occurred during the week of March 17 to 23.

Pumping was started on April 26 but ditch maintenance necessitated frequent starting and stopping of the pumps for the first two days. Filling of stock ponds above the refuge also delayed arrival of water at the refuge until the evening of April 30. The volume of water in Muddy Creek was sufficient to operate one pump set to stop and start automatically and even then the pump would draw the level down and stop after approximately 4 to 5 hours.

Greenfields Irrigation District reports that their ditches will be flushed around May 10, and they will begin to deliver water shortly after that date; so, Muddy Creek's volume will soon be sufficient to operate all three pumps.

Kloppel Coulee Creek has had an average flow of approximately 1½ c.f.s. and has not been of much help as a supply of water thus far.

2. Food and Cover

Early in the period, extreme cold and heavy snow cover made for slim pickings for the birds in the Great Falls area. Agent Ash Brann was contacted when many of the birds near Giant Springs appeared weak and unable to fly. Agent Brann arranged for grain stored at General Mills elevator to be used in a feeding program until the weather relented and food was again available. Approximately 2500 Mallards were involved in the feeding program. Fourteen to fifteen hundred pounds of grain was fed on Mondays and Fridays from January 23 to February 4, when chinook winds melted most of the snow cover.

Green winter wheat has provided adequate food for waterfowl in the last few weeks, although no use has been observed on the refuge land farmed by Mr. Ole Olson.

II. WILDLIFE

A. Migratory Birds

Benton Lake was devoid of waterfowl from January 1 until the week of March 17 to 23. Pintails (primarily males) made up the bulk of the early migrants arriving at the refuge. Mallards and Widgeons were also quite high in numbers, but considerably less than the Pintails. Divers were apparent but few in numbers compared to the puddlers. Swans peaked at 250 on March 23. A small number of Canada Geese used the refuge in late March, and 170 Snow Geese were observed April 3.

No geese have remained on the refuge for the nesting season, but breeding activities are apparent in a majority of ducks using the refuge. Nesting cover is at a minimum but some production is expected from cover along Lake Creek Channel and near flooded borrow areas.

Other waterbirds frequenting the refuge have thus far been limited to the Eared Grebe and the American Coot. Both species put in their appearance in the latter half of April. Grebe numbers have not increased rapidly, but Coots have experienced a good build-up in the two weeks since their arrival. Breeding activity has not been apparent in either species as yet.

Shorebirds and Gulls have been arriving nicely since late March and continue to increase in numbers as spring progresses. A few of the small sandpipers have become apparent since the close of the reporting period.

Doves have only recently begun to brave the icy reaches of this northern region, and a single specimen was observed in time to be included in this narrative report.

B. Upland Game Birds

Refuge personnel were pleasantly surprised when a small covey of Sharp-tailed Grouse dropped into headquarters in time for lunch on a blustery day in early March. Sharptails in this area are generally associated with the brushy foothills and were not expected in the short-grass type around Benton Lake. It is hoped that the birds will increase as refuge croplands, shelterbelts and upland plantings are developed. Ring-necked pheasants were noted on the refuge for the first time and a small number of Gray Partridge are seen occasionally.

Cover seems to be the limiting factor for upland species in the Benton Lake area. Clean farming and overgrazing is the rule on lands near the refuge, and Great Falls has more than its share of Sunday afternoon pot-shooters; so upland birds have a tough time of it to say the least. Development of the refuge should prove to be a boon to these birds as well as the waterfowl which receive first priority.

C. Big Game Animals

The small herd of Pronghorns, which frequent the lake bed, returned to the refuge late in February. Thirty-one head has been the high count this spring, but at the close of the reporting period the animals had diminished in number to the normal 18 to 21 head. The sex ratio of the herd is approximately 1:2, but one old buck appears to have a monopoly on about one-half of the does. It is hoped that production will be better this year than last, as only 3 young were observed the previous summer.

D. Predators, Rodents and Other Mammals

Predator and rabbit populations are of quite low density in the area, again due to lack of cover and week-end pot-shooters. A fine mouse population has established itself in the vicinity of headquarters, and via radar or some such device, manages to seek out the millet seed no matter how craftily it is hidden.

E. Hawks, Eagles, Owls, Crows and Magpies

Both the Bald and the Golden Eagles, as well as five species of hawks, have been in evidence at Benton Lake this spring. Thus far, populations have been low and undue predation has not been observed.

Short-eared owls have been noted on a few occasions, and Crows were observed on the area for the first time since the writer arrived at Benton Lake. Magpies are even present, but are quite low in numbers and present no problem.

F. Other Birds

The Benton Lake Bird List is just being started and as more area is flooded and vegetation changes occur new species will continue to appear. The Water Pipit and Ferruginous Hawk are recent additions, as well as the Ring-Necked Duck, Sharp-tailed Grouse, and Yellow-Headed Blackbird. One apparently lost Common Loon was observed to have a ridiculous look on its bill as it puddled around in six inces of water in recently flooded Unit II.

G., H., I.

Nothing to report.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

Refuge development was concentrated in the headquarters area this winter and saw the completion and acceptance of the masonary Office-Service building, and the two frame residences. Visiting refuge personnel have turned green with envy upon inspection of the new facilities, and Benton Lake personnel are justifiably proud of and anxious to move into them.

A portion of the metal equipment building was partitioned-off and insulated for a shop large enough to work on heavy equipment. A Model 800-250 Electro Magic heater was installed and does a very nice job of keeping the shop at a temperature agreeable for working when the thermometer has hit the bottom and the wind threatens to carry the building into the next county.

Prior to starting the water supply system, it was necessary to re-build a washed-out dam on the Carl Hinderager ranch. The apparent cause of the washout was rodent damage; but, it is felt that the use of a single, large culvert and riser, rather than the double culverts and risers would have prevented the problem entirely. As it was, the space between the two culverts was an ideal setting for the washout which occurred.

Further major development projects to be commenced in the near future include gravel rip-rap work on dikes 46, 49E and 49W as well as interior and boundary fencing. A contract for 7¼ miles of interior and boundary fence is soon to be let. This contract will include fencing out the entrance road and headquarters site, as called for in the Master Development Plan, and replacement of 2-3/4 miles on the north boundary. Replacement of fence on the west side of Bootlegger Trail, and repair of that on the east side is also planned.

B. Plantings

1. Aquatic and Marsh Plants

Wild millet was drilled at the toe of all dikes and across the borrow ditches from all dikes in an effort to reduce wave action, provide much needed cover, and perhaps compete with a persistant stand of cattail. The millet is not expected to mature in this climate, but will provide the above mentioned services until the roundstem and alkali bulrush planting take hold. Approximately 52 acres were sowed at a rate of 30 pounds per acre. The seeding rate was necessarily high as the percentage of millet in the rice screenings was quite low.

2. Trees and Shrubs

Refuge shelterbelts and windbreaks were started just before the close of the reporting period. Following the Soil and Moisture Plan, four-row shelterbelts were planted on the north and west sides of all refuge farm plots, and a seven-row windbreak was initiated around the headquarters site. Rapid growth of this latter planting is ardently hoped for, as refuge personnel often fear that the whole site will blow away.

Species used in the four-row belts are Caragana, Russian Olive, Green Ash and Rocky Mountain Juniper. The seven-row windbreak consists of Caragana, Russian Olive, Green Ash, Siberian Elm, American Elm, Buffalo Berry, and Blue Spruce. Spacing between plants and between rows follow recommendations of the County Agent and Soil Conservation Service. All trees and shrubs were planted with a machine rented from the local 4-H Club. Stock was obtained from Montana State University, Missoula, and Plumfield Nurseries, Fremont, Nebraska. Juniper was not available in Montana and upon recommendations of the County Agent and Montana State Forest Tree Nursery, was ordered from Nebraska. The Nebraska stock is said to be from eastern Montana and was very nice and healthy. All stock was in excellent condition and, with normal moisture or better, should have a high rate of survival.

Several upland shrub plantings are planned for the near future to provide food and cover for resident game birds. Caragana, Cotoneaster, Buffalo Berry, Russian Olive and possibly Juniper will be utilized for these plots. The plantings will be placed in fence corners and small drainages and, where possible, will be fenced from cattle.

3. Upland Herbaceous Plantings

No work has been done, as yet, in this category but some range reseeding is anticipated in Unit G-5 on the east side of Bootlegger Trail. Detailed plans for the project are pending completion of a survey being conducted by the Soil Conservation Service, which will be discussed later in this report.

4. Cultivated Crops

Three hundred and sixty acres are now under cultivation at Benton Lake. Mr. Ole M. Olson tills 40 acres under a cooperative farming agreement, and the remaining acreage is worked by refuge personnel. Mr. Olson has 17 acres in winter wheat and 8 acres in barley, the remainder is fallowed. Expected yields are 10 and 25 for the wheat and barley, respectively. Refuge farming includes 80 acres each of spring wheat and barley, the remaining 160 are being fallowed.

Refuge croplands were fertilized with 16-48-0 granular material, applied at 50 pounds per acre. This measure was taken when soil analysis revealed very low Nitrogen and Phosphate content in the soils to be cropped. Moisture content is good, but more is needed to insure successful crops this summer. Yields on refuge lands are expected to approximate those obtained by Mr. Olson.

C. Collections and Receipts

1. Seed or other Propagules

Seed received during the period includes 90 bushels each of spring wheat and barley, and approximately 8300 pounds of wild millet - rice screenings. The wheat and barley were obtained from commercial sources and were cleaned and treated. The rice screenings were procured from Sacramento Refuge and were not of the highest quality. Millet comprised less than 40% of the seed and necessitated heavy seeding rates.

2. Specimens

Nothing to report.

E. Planned Burning

No planned burning has been accomplished in the past year. The Master Plan calls for burning of the lake bed prior to flooding as a botulism preventive measure. Pending further study and approval, Units III and IV will be subjected to a controlled fire treatment.

1. General

Units III and IV are tentatively planned for burning. Acreages are 1134 and 1792 respectively for the two units. Burning is proposed to eliminate the heavy stand of forbs in the lake bed which could be a potential source of botulism.

2. Conditions prior to burning

Very little wildlife use is made of the areas as they now stand. Pronghorns are the primary users, but they range widely over the entire refuge area. Cover is not dense enough or of the proper type for waterfowl or upland bird nesting. Few birds are ever seen in the areas other than near the banks of the flooded borrow ditches on three sides of each unit.

Dominant species in both units are Foxtail, Salsify, Kochia, Lactuca and other forbs. The edges of the units still have a fair to good stand of Western wheatgrass, Bluegrasses and Green Needle grass.

F. Fires

No fires occurred on the refuge during the reporting period.

IV. RESOURCE MANAGEMENT

A. Grazing

Refuge range lands are in good shape this spring, what with above normal precipitation and no grazing during the previous season.

Plans for the coming season are to turn stock in July 1 for a four month period. Grazing rates are tentatively set at 50% of the average use over the past 5 years, pending the results of the survey being conducted by the Soil Conservation Service. Reduction in use is being done due to plans for flooding much of the lake bed this summer and because of apparent over use in the past. No grasing is anticipated in Unit G-5 due to poor condition and tentative plans for improvement work.

B., C., D., E., F.

Nothing to report.

V. FIELD INVESTIGATION

A. Progress Report

An informal agreement has been entered into with the Soil Conservation District, which authorizes the S.C.S. to conduct soil, range and land use surveys on the refuge. The end result of the surveys will be a complete set of data on land capabilities and recommended use practices.

The soil survey has been completed and, since many new soils have been discovered, Benton Lake has been designated as a correlation point for further study. The range survey is scheduled to begin early in May with other studies and final reporting to follow.

VI. PUBLIC RELATIONS

A. Recreational Use

There has been no recreational use at Benton Lake this period.

B. Refuge Visitors

Name	Date	Address	Purpose of Visit
Baine Cater	1/63	Sacramento Refuge Willows, Calif.	Informal Visit
John V. Mack	1/29-2/1	B.S.F.&W. Br. of Engr.	Inspection
Fred Staunton	1/30/63	C.M.R. Game Range Lewistown, Mont.	Informal Visit
Dean Gilbert	1/30/63	C.M.R. Game Range Lewistown, Mont.	Informal Visit
Bob Spinde	2/5/63	Br. Mgt. Enforce. Lewistown, Mont.	Informal Visit
Dean Gilbert	2/18/63	C.M.R. Game Range Lewistown, Mont.	Informal Visit
John V. Mack	2/25-3/1	B.S.F.&W. Br. of Engr.	Inspection
Harry A. Goodwin	3/1/63	B.S.F.&W. Div. ot Tech. Ser.	Inspection
E. F. Johnson	3/21/63	Wapanocca Refuge Arkansas	Field Trip
John V. Mack	3/25-30	B.S.F.&W. Br. of Engr.	Inspection
John Fraier	3/26/63	U.S. Geological Sur. Great Falls, Mont.	Domestic Well inspect.
Earl M. Brooks	4/4-5/63	McNary Refuge Pasco, Wash.	Delivery of Sta. Wagon
Charles Hinderager	4/15/63	Permittee Great Falls, Mont.	Informal Visit

Kay Lee	4/25/63	G.T.A. Farmers Union Sun River, Mont.	Fertilizer appl.
Jim Ross	4/29/63	County Extension Ser. Great Falls, Mont.	Shelterbelt plant.
Dean Gilbert	4/29/63	C.M.R. Game Range Lewistown, Mont.	Informal Visit
Linda Wicks	4/29/63	C.M.R. Game Range Lewistown, Mont.	Informal Visit
Ted Miller	4/63	Soil Conservation Ser. Great Falls, Mont.	Soil Survey
Glen Richardson	4/63	Soil Conservation Ser. Great Falls, Montana	Soil Survey

C. Refuge Participation

The Manager and the writer attended all meetings of the Cascade County Wildlife Association, and the very fine wildlife forums presented by Dr. Less Pengelly of Montana State University. Manager Stroops provided music for mallards with his trusty duck call at the annual "Sportorama" also presented by the Cascade County Wildlife Association.

Both the Manager and the Assistant attended a Mosquito Control Course presented by the Public Health Service, Communicable Disease Center, and received certificates upon completion of the classes. Heavy Equipment Operator Rodman and Maintenanceman Engstrand attended a night course in First Aid conducted by the local Red Cross.

The Assistant Manager prepared a report covering the wintering season for Audubon Field Notes.

D., E.

Nothing to report.

F. Safety

Staff and SAFETY meetings were held monthly throughout the reporting period. All personnel were in attendance, and chairmanship of the presentation and discussion was passed from man to man. Prepared literature distributed by the Regional Office was presented and discussed, as well as station problems and situations. No accidents occurred at this field station during the period and Benton Lake has now accumulated 625 days without a lost time accident.

VII. OTHER ITEMS

A. Items of Interest

Personnel changes during the period include hiring of two temporary Maintenancemen, Vincent Marko and Roger Habel. Both men have worked on the refuge in previous years. Mr. John Rieger was also added to the crew as a temporary laborer.

B. Photographs

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE BENTON LAKE MONTHS OF JANUARY 1 TO APRIL 30, 1963

(1) Species	(2) Weeks of reporting period: 12-30/1-5 (1)	1/6-12 (2)	1/13-19 (3)	1/20-26 (4)	1-27/2-2 (5)	2/3-9 (6)	2/10-16 (7)	2/17-23 (8)	2-24/3-2 (9)	3/3-9 (10)
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard										
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot:										

3 -1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE BENTON LAKE MONTHS OF JANUARY 1 TO APRIL 30, 1963

(1) Species	(2) Weeks of reporting period: 3/10-16 11	3/17-23 12	3/24-30 13	3-31/4-6 14	4/7-13 15	4/14-20 16	4/21-27 17	4/28-30 18	(3) Estimated waterfowl days use	(4) Production: Broods seen	Estimated total
Swans:											
Whistling		56	150						1,442		
Trumpeter											
Geese:											
Canada		14	15						203		
Cackling											
Brant											
White-fronted											
Snow				170					1,190		
Blue											
~~Other~~ TOTAL		14	15	170					1,393		
Ducks:											
Mallard		245	990	440	480	495	320	290	21,660		
Black											
Gadwall						20	25	95	600		
Baldpate		270	800	815	520	405	135	130	21,005		
Pintail		870	1,700	1,020	595	550	515	235	37,455		
Green-winged teal		30	50		45	280	185	150	4,580		
Blue-winged teal								10	30		
Cinnamon teal											
Shoveler		5	30	140		130	115	215	3,585		
Wood											
Redhead		5	10	30	10	20	25	20	760		
Ring-necked								5	15		
Canvasback		5	50	35	20		10		840		
Scaup			10	15	10	30	70	60	1,125		
Goldeneye		40	80	80	25	15			1,680		
Bufflehead						5	15	15	185		
Ruddy							10	50	220		
~~Other~~ Com. Merganser				2			1		21		
TOTAL		1,470	3,720	2,577	1,705	1,950	1,426	1,275	93,761		
Coot:						30	140	920	3,950		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	1,442	150	
Geese	1,393	170	
Ducks	93,761	3,720	
Coots	3,950	920	

SUMMARY

Principal feeding areas Units I and II and agricultural lands surrounding refuge

Principal nesting areas Banks of Lake Creek Channel, along borrow ditches and in scattered cover around Units I and II.

Reported by Robert L. Barber
Robert L. Barber

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge BENTON LAKE Months of JANUARY 1 to APRIL 30 1963

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Eared Grebe	21	April 24	30	April 30	30	April 30				30
American Coot	22	April 17	920	April 30	920	April 30				920
II. Shorebirds, Gulls and Terns:										
Killdeer	5	March 22	150	April 30	150	April 30				150
Common Snipe	1	April 19	1	April 19	1	April 19				1
Long-Billed Curlew	5	April 14	50	April 30	50	April 30				50
Greater Yellowlegs	2	April 5	25	April 30	25	April 30				25
American Avocet	4	April 12	100	April 30	100	April 30				100
Wilson's Phalarope	25	April 26	35	April 30	35	April 30				35
Ring-Billed Gull	1	March 26	20	April 30	20	April 30				20
Franklin's Gull	6	April 26	60	April 30	60	April 30				60

(over)

(1)	(2)		(3)		(4)		(5)	(6)
III. Doves and Pigeons:								
Mourning dove	1	April 29	1	April 29	1	April 30		1
White-winged dove								
IV. Predaceous Birds:								
Golden eagle	2	April 3	2	April 3	1	April 25		1
Duck hawk								
Horned owl								
Magpie								
Raven								
Crow	15	March 25	15	March 25	1	April 5		15
Rough-Legged Hawk	2	Feb. 25	5	March 10	1	April 5		5
Ferruginous Hawk	1	April 25	1	April 25	1	April 25		1
Bald Eagle	1	March 21	1	March 21	1	March 21		1
Marsh Hawk	1	March 26	10	April 30	10	April 30		10
Prairie Falcon	1	April 4	2	April 30	2	April 30		2
Short-Eared Owl	1	April 2	1	April 2	1	April 24		1

Reported by Robert L. Barber

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

36104

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge BENTON LAKE Months of JANUARY 1 to APRIL 30, 1963

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sharp-Tailed Grouse	Short Grass Prairie 12,400 A.		N/A			N/A	0	0	15	These birds, in all cases, are only seen on refuge land occasionally. Populations of all three species are expected to increase as refuge croplands, shelterbelts, upland plantings and emergent vegetation are developed.
Ring-Necked Pheasant									2	
Gray Partridge									10	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge BENTON LAKE Year ending April 30, 1963

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5)
								Share Trapping						Total Population
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
Long-Tailed Weasel	Shortgrass Prairie			N	O	N	E		N	O	N	E		All species low in population density
Striped Skunk	12,400 Acres													
Badger														
Coyote														
Columbian Ground Squirrel														
White-Tailed Jack-Rabbit														
Cottontail														

* List removals by Predator Animal Hunter

REMARKS: Badgers and Columbian Ground Squirrels may pose problems by burrowing in dikes

Reported by Robert L. Barber

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

CONTENTS

PISHKUN NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

JANUARY - APRIL 1963

I. GENERAL

A. Weather Conditions

Weather information for the Pishkun Refuge area is supplied by Mr. Raymond Kelly, County Agent, Choteau, Montana. The following table will serve to summarize monthly data compiled by Mr. Kelly:

	Snowfall	Precipitation This Month	Normal	Temperature Max.	Min.
January	9.0	.38	.29	60	-31
February	4.0	.20	.57	67	-16
March	0.0	.02	.42	70	11
April	10.0	1.00	.57	76	7
Total	23.0	1.60	1.85	Extremes 76	-31

Dryland farmers in the area certainly had long faces until a very welcome five inches of wet snow fell on April 1 and provided .40 inches of moisture. Much of the winter wheat in the area had to be reseeded, and the general outlook for crops was pretty dim.

B. Habitat Conditions

1. Water

The reservoir was held at low level through the major part of the period. The west pool was extremely low and many of the islands could be approached from the mainland via sandbars. Water elevations declined from 4361.5 on January 1 to 4361.1 on April 22 when water was released from Gibson Dam into Pishkun Reservoir. The level was up to 4363.3 at the close of the period, and was still rising.

April snows brightened the water picture considerably in this part of Montana, but snowpack is still 20 - 25% below average in the Sun River Drainage.

2. Food and Cover

Agricultural lands in the vicinity of the refuge provide sufficient food for geese and ducks stopping at Pishkun. Some aquatics are available for divers, and the mergansers are kept plump on the abundant fish life.

Cover around the reservoir is at a minimum, due mainly, to the extreme fluctuation of the water level. The west pool does have some cover in the form of willows and tall grasses on the larger islands and it is here that a small flock of Canada Geese annually bring off their broods. The tiny pothole on the north side of the refuge continues to provide the best cover available. A fine stand of hardstem bulrush surrounds the open water of the pond, and provides cover for a majority of the ducks which nest on the refuge.

II. WILDLIFE

A. Migratory Birds

Pishkun was completely iced-over until mid-March, so waterfowl use was nil until that time. Whistling Swans were among the early arrivals, but had passed through entirely by mid-April. The Common Goldeneye dominated the reservoir immediately after ice-out, but soon bowed to the Pintail. April saw the Common Merganser as the most numerous species. Other divers composed the greatest percentage of the remaining population.

Breeding activity is apparent in the Canada Geese and Common Mergansers, as well as some of the other species; but cover is limiting and in the past few broods, other than the geese and mergansers, have been observed.

The east pool carried the greatest percentage of waterfowl use until the last two weeks in the period, when filling of the reservoir was commenced.

Several species of waterbirds have been in evidence at Pishkun this spring. The American Coot is, of course, the most abundant with the Common Loon and Double-crested Cormorant second and third, respectively. Three species of grebes are present, but the Western has not yet appeared. Nesting activity had not commenced on the Cormorant island prior to the close of the reporting period.

Small numbers of shorebirds have been noted around the reservoir, and a large colony of Ring-billed Gulls has settled on the Cormorant island.

Doves have not been seen at Pishkun this spring. Populations are never high, but seem to be lower than usual these past two years.

B. Upland Game Birds

Nothing to report.

C. Big Game Animals

A small herd of Pronghorns has been seen in the vicinity of Pishkun on several occasions, but have not been known to use the refuge itself.

D. Predators, Rodents and Other Mammals

Few predatory animals have been observed at Pishkun, and rodent populations are limited to a few Columbian Ground Squirrels. Cottontails and White-Tailed Jackrabbits are seen occasionally, but are also of low density.

E. Hawks, Eagles, Crows and Magpies

Birds in this category have been limited to a single Golden Eagle, a few Crows and Magpies. Numbers are generally low for all predatory bird populations, and pressures on game species are light.

F. Other Birds

Nothing to report.

G. Fish

Little is known concerning the game-fish populations in the reservoir, as fishing pressure has been almost non-existent this spring. The effects of extreme draw-down on trout, grayling, and pike in Pishkun is not known, but it does effect the fishing pressure to a high degree. The lake produces very nice trout and some large pike, but has not been stocked for several years and does not boast a high rate of success.

H., I.

Nothing to report.

III. REFUGE DEVELOPMENT AND MAINTENANCE

Nothing to report.

IV. RESOURCE MANAGEMENT

A. Grazing

Refuge rangelands remain about static in a fair to good condition. The coming grazing season will be, as in past years, from June 15 to October 15 with a planned use of 1060 AUM's. Poor salting practices are to be changed to insure better distribution of the grazing pressure.

B., C., D., E., F.

Nothing to report.

V. FIELD INVESTIGATION

Nothing to report.

VI. PUBLIC RELATIONS

A. Recreational Uses

Recreational use has been almost negligible this spring. The usual early fishermen have been directing their attention toward Willow Creek Reservoir and other early opening waters.

B., C., D., E., F.

Nothing to report.

VII. OTHER ITEMS

A. Items of Interest

Regulations covering fishing and boating on the refuge have been changed this spring. The refuge will now be open during the entire year except for the period from September 3 to December 31. This is expected to increase interest in fishing during the spring months, as the reservoir has been closed from March 31 until the opening of the general season in past years.

The controversial 10 horsepower limit on outboard motors has been lifted, much to the joy of waterskiers and the chagrin of a small set of shore fishermen. Few problems are anticipated concerning the relaxation in regulations, but only time will tell. The majority of people contacted are very much in favor of the new rules, but some fishermen have their doubts about the courtesy which "hot rodders" and "skiers" will show them.

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE PISHKUN

MONTHS OF JANUARY 1 TO APRIL 30, 1963

(1) Species	(2) Weeks of reporting period									
	12/30-1/5	1/6-12	1/13-19	1/20-26	1/27-2/2	2/3-9	2/10-16	2/17-23	2/24/3-2	3/3-9
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard										
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot:										

ALL WATER AREA FROZEN

3 -1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE PISHKUN MONTHS OF JANUARY 1 TO APRIL 30, 1963

(1) Species	(2) Weeks of reporting period: 3/10-16 11	3/17-23 12	3/24-30 13	3/31/4-6 14	4/7-13 15	4/14-20 16	4/21-27 17	4/28-30 18	(3) Estimated waterfowl days use	(4) Production: Broods seen	(4) Production: Estimated total
Swans:											
Whistling		20	26		3				364		
Trumpeter											
Geese:											
Canada			42		30		23		1,105		
Cackling											
Brant											
White-fronted											
Snow					2				28		
Blue											
~~Other~~ TOTAL			42		32		23		1,133		
Ducks:											
Mallard		20	85		50		30		1,945		
Black											
Gadwall											
Baldpate			45		30		15		990		
Pintail			240		20		5		2,045		
Green-winged teal					10				140		
Blue-winged teal											
Cinnamon teal											
Shoveler					5				70		
Wood											
Redhead			10				55		1,005		
Ring-necked							1		17		
Canvasback					125		40		2,430		
Scaup			15				40		785		
Goldeneye		150	30		5				1,330		
Bufflehead					5		2		104		
Ruddy							5		85		
~~Other~~ Com.Merganser			10		305		195		7,655		
TOTAL		170	435		555		388		18,601		
Coot:					390		440		12,940		

FROZEN

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	364	26	
Geese	1,133	42	
Ducks	18,601	555	
Coots	12,940	440	

SUMMARY

Principal feeding areas Agricultural lands surrounding the refuge and aquatics in west pool

Principal nesting areas Islands in west pool and small pothole near north shore of reservoir

Robert L. Barber

Reported by Robert L. Barber

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

16242

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Pishkun Months of January 1 to April 30 1963

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Common Loon	5	April 14	49	April 29	49	April 29				49
Red-Necked Grebe	2	April 14	4	April 29	4	April 29				4
Horned Grebe	5	April 29	5	April 29	5	April 29				5
Eared Grebe	4	April 29	4	April 29	4	April 29				4
Double-Crested Cormorant	22	April 14	25	April 29	25	April 29				25
American Coot	390	April 14	440	April 29	440	April 29				440
II. Shorebirds, Gulls and Terns:										
Killdeer	5	March 30	20	April 29	20	April 29				20
Long-billed Curlew	2	April 14	10	April 29	10	April 29				10
American Avocet	1	April 29	1	April 29	1	April 29				1
Ring-billed Gull	160	March 30	245	April 14	245	April 29				245
California Gull	4	April 14	10	April 29	10	April 29				10
Franklin's Gull	2	April 29	2	April 29	2	April 29				2

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. Doves and Pigeons:									
Mourning dove									
White-winged dove									
IV. Predaceous Birds:									
Golden eagle	1	March 30	1	March 30	1	March 30			1
Duck hawk									
Horned owl									
Magpie									
Raven									
Crow	4	March 30	4	April 29	4	April 29			4

Reported by Robert L. Barber

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge PISHKUN Months of JANUARY 1 to APRIL 30, 1963

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
No birds in this category have been observed at the refuge during the period concerned.										

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge PISHKUN Year ending April 30, 1963

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5)
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Total Population
Striped Skunk	4,192 acres short-grass prairie			NONE					NONE					All species low in population density.
Coyote														
Columbian Ground Squirrel														
White-tailed Jack rabbit														
Cottontail														

* List removals by Predator Animal Hunter

REMARKS:

Reported by Robert L. Barber

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

32715

C O N T E N T S

WILLOW CREEK NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

JANUARY - APRIL 1963

I. GENERAL

A. Weather Conditions

The following table presents weather data for Willow Creek as supplied by the U. S. Forest Service, Augusta, Montana.

	Snowfall	Precipitation This Month	Normal		Temperature Max.	Min.
January	*	.73	.50		59	-36
February	*	.41	.54		66	-16
March	*	.04	.82		69	9
April	*	1.27	1.05		75	5
Totals		2.45	2.91	Extremes	75	-36

*It is rather disappointing that the Forest Service does not keep snowfall records, but it can be assumed that Willow Creek received considerably more snow than did Pishkun Refuge. Pishkun had 1.60 inches of precipitation and 23.0 inches of snow (see Pishkun Narrative) while Willow Creek's 2.45 inches of precipitation could mean as much as 35.22 inches of snow.

Normal precipitation figures were supplied for the Augusta area by the U. S. Weather Bureau, International Airport, Great Falls, Montana.

B. Habitat Conditions

1. Water

Contrary to the water situation at Pishkun Refuge, Willow Creek reservoir was less than 5 feet below crest elevation at the start of the period and increased to 4138.9 (which is 3.1feet below crest) by April 30. The reservoir benefits from run off by way of Upper Willow Creek, while Pishkun has no inlet other than the controlled supply canal from Gibson Dam.

The outlook for the coming irrigation season is for short water supply due to below normal snow pack in the Sun River Drainage. Willow Creek reservoir can be expected to be drawn down below the levels attained last year.

2. Food and Cover

The refuge is not overly well supplied with cover for wildlife. The reservoir lies amid rolling shortgrass hills which offer little cover for resident game and even less for waterfowl. Shoreline vegetation has not developed as the reservoir is used for irrigation and frequently is subjected to severe drawdown. Waterfowl rely upon the protection of open water; and during severe weather, use the bays and small islands along the north and west shores of the lake.

Food is available in the aquatics produced in the reservoir, as well as croplands in the vicinity of the refuge.

II. WILDLIFE

A. Migratory Birds

Here, as at Pishkun, waterfowl use began with the disappearance of the ice in mid-March. Swans, Pintails and Common Goldeneyes were the earliest arrivals with Mallards and Geese appearing two weeks later. Common Mergansers and other divers dominated the reservoir as the reporting period drew to a close. Breeding activity is evident in the Mergansers and Canada Geese, but nesting cover is so scarce that few broods are expected.

Other waterbirds observed during the period include the Common Loon, Horned, Eared and Western Grebes, the Great Blue Heron and the American Coot. The Coot was first seen on April 14, when approximately 200 birds were noted. Numbers had increased to nearly 3000 birds by April 29, the last census during the period. Grebes are present in small numbers, but will continue to build up to the large populations of the summer months.

Shorebirds have thus far been limited to the Killdeer and Long-billed Curlew. The California and Ring-billed Gulls are the two species which have been observed during the early spring. Doves have not yet been seen at Willow Creek, but here again suitable habitat is at a minimum for the species.

B. Upland Game Birds

One sizeable covey of Gray Partridge was known to be using the refuge during the previous reporting period, and are assumed to be present now. Very little good habitat is to be found on the refuge for this or any other upland game bird. The area along Willow Creek below the dam offers some possibilities for management directed toward upland species, but few, if any, other places have potential.

C. Big Game Animals

Nothing to report.

D. Predators, Rodents and Other Mammals

Low density populations of predators such as the striped skunk and Coyote are present at Willow Creek Refuge. Little damage has been noted and problems are not anticipated. Cattle and the two-legged predators probably do twice the destruction wrought by their wild counterparts.

The Columbian Ground Squirrel is seen quite often as it scurries across the trail and pops into its burrow. White-tailed Jackrabbits and a few Cottontails pretty well complete the list of small mammals observed on the refuge.

E., F.

Nothing to report.

G. Fish

Fishing has been quite slow so far this year, but a small number of die-hards have been flailing the water ever since the ice began to show signs of breaking up. The catches have been small, but in number only - the fish are beautiful Rainbows running from two to six pounds.

H., I.

Nothing to report.

III. REFUGE DEVELOPMENT & MAINTENANCE

Nothing to report.

IV. RESOURCE MANAGEMENT

A. Grazing

Willow Creek ranges are in fair to good condition this spring, and plans call for the same season and use that was in effect last year. The local cattlemen's association has been asked to move salt stations back from the lake shore to accomplish better distribution of grazing pressure.

B., C., D., E., F.

Nothing to report.

V. FIELD INVESTIGATION

Nothing to report.

VI. PUBLIC RELATIONS

A. Recreational Uses

Fishing has been the major recreational use this spring. Boating, picnicking and water-skiing can be expected to increase as warmer weather approaches.

B., C., D., E., F.

Nothing to report.

VII. OTHER ITEMS

A. Items of Interest

Comments in the Pishkun Narrative concerning regulations changes and public opinion apply equally to Willow Creek Refuge.

* When censuses were made bi-weekly, it was assumed that the population during the non-censused week was same as preceding week in compiling waterfowl use days. Figures for the week of 4/21 - 4/27 were also used for the last days of the period (4/28 - 4/30).

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE WILLOW CREEK MONTHS OF JANUARY 1 TO APRIL 30, 1963

(1) Species	(2) Weeks of reporting period									
	12-30/1-5 (1)	1/6-12 (2)	1/13-19 (3)	1/20-26 (4)	1/27-2/2 (5)	2/3-9 (6)	2/10-16 (7)	2/17-23 (8)	2/24-3/2 (9)	3/3-9 (10)
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada								FROZEN		
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard						AREA				
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal					AREA					
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup		ALL								
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot:										

3 -1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE WILLOW CREEK MONTHS OF JANUARY 1 TO APRIL 30, 1963

(1) Species	(2) Weeks of reporting period: 3-10/16 (11)	3-17/23 (12)	3-24/30 (13)	3-31/4-6 (14)	4-7/13 (15)	4-14/20 (16)	4-21/27 (17)	4-28/30 (18)	(3) Estimated waterfowl days use	(4) Production: Broods seen	(4) Production: Estimated total
Swans:											
Whistling		40	9						343		
Trumpeter											
Geese:											
Canada		10	18		15		17		695		
Cackling											
Brant											
White-fronted											
Snow					25		88		1,846		
Blue											
~~Other~~ TOTAL		10	18		40		105		2,541		
Ducks:											
Mallard			110		35		40		1,940		
Black											
Gadwall							15		255		
Baldpate			50				35		945		
Pintail		700	480		85		30		9,960		
Green-winged teal							10		170		
Blue-winged teal											
Cinnamon teal											
Shoveler											
Wood											
Redhead			5				10		205		
Ring-necked											
Canvasback					35		35		1,085		
Scaup							10		170		
Goldeneye		350	45				5		2,850		
Bufflehead							5		85		
Ruddy					10		40		820		
~~Other~~ Com.Merganser			5		300		497		12,684		
TOTAL		1,050	695		465		732		31,169		
Coot:					215		2,770		50,100		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	343	40	
Geese	2,541	105	
Ducks	31,169	1,050	
Coots	50,100	2,770	

SUMMARY

Principal feeding areas Surrounding agricultural lands and aquatics near north and west shores of reservoir

Principal nesting areas Islands near north and west shores and lowland near inlet of Upper Willow Creek

Reported by Robert L. Barber

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge WILLOW CREEK Months of JANUARY 1 to APRIL 30 195 63

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Common Loon	6	April 13	49	April 29	49	April 29				50
Horned Grebe	6	April 29	6	April 29	6	April 29				6
Eared Grebe	2	April 29	2	April 29	2	April 29				2
Western Grebe	5	April 29	5	April 29	5	April 29				5
Great Blue Heron	1	April 13	1	April 13	1	April 13				1
American Coot	215	April 14	2,770	April 29	2,770	April 29				2,770
II. Shorebirds, Gulls and Terns:										
Killdeer	10	March 30	20	April 29	20	April 29				20
Long-billed Curlew	5	April 29	5	April 29	5	April 29				5
Ring-billed Gull	5	March 30	20	April 29	20	April 29				20
California Gull	1	March 17	5	April 29	5	April 29				5

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove					
White-winged dove					
IV. Predaceous Birds:					
Golden eagle					
Duck hawk					
Horned owl					
Magpie					
Raven					
Crow					

Reported by Robert L. Barber
Robert L. Barber

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

36104

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge WILLOW CREEK Months of JANUARY 1 to APRIL 30, 1963

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Gray Partridge	4,598 acres shortgrass prairie								40	These birds were last seen during the previous reporting period and are only assumed to be using the refuge at the present time.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge WILLOW CREEK Year ending April 30, 1963

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5)
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Total Population
Striped Skunk	4,598 acres short-grass prairie			NONE					NONE					All species low in population density
Coyote														
Columbian Ground Squirrel														
White-tailed Jack Rabbit														
Cottontail														

* List removals by Predator Animal Hunter

REMARKS:

Reported by Robert L. Barber
Robert L. Barber

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

16-1 Some of the 2,500 Mallards involved in the winter feeding program near Giant Springs on the Missouri River, Great Falls

17-2 Gravel slide on Muddy Creek (which supplies Benton Lake water) below Kloppel Coulee, showing constriction of stream flow

19-5 Upstream view of Structure No. 45 after repairs and building up the dam

19-12 Downstream view of Structure No. 45, Carl Hinderager ranch, upon completion of repairs

19-3 Farm-shelterbelt planting operations in Unit F-3

19-4 Jim Ross, County Agent, and Vincent Marko, Maintenanceman, "in the saddle" of the 4-H Club tree planter

17-5 Overhead view of gravel slide caused by dumping of irrigation waste over unstable hillside

17-9 Structure No. 44 on the Carl Hinderager ranch after leaks had been sealed and new tongue-and-groove flashboards installed

17-12 Close-up of damage to earthen dam at Structure No. 45 on the Carl Hinderager ranch

18-2 View from down-stream side of Structure No. 45 showing extent of washout. A single large culvert instead of two small ones would have prevented this damage